

Summary of the Comprehensive List of Water Supply Options Considered in the Water Supply Evaluation

Water Supply Option or Strategy		Availability ^(a)	Dry Year Yield ^(b)		Average Annual Yield ^(c)		Peak Day Capacity, mgd ^(d)	Estimated Timing: Supply is Available to Zone 7 ^(e)	Total Costs <i>(does not reflect funding source)</i>			Included in Portfolio Analysis?
			af	mgd	af	mgd			Capital Cost, \$ ^(f)	Annual Operation and Maintenance Cost, \$/year ^(g)	Total Amortized Cost, \$/acre-foot ^(h)	
Increased Yield from Existing Supplies												
Delta Fix <i>(increase long-term average yield of existing State Water Project contract from 60% to 75%)</i>		Depends on hydrologic conditions	no change	no change	12,100	10.8	0	2020 - 2030	\$97,000,000 to \$143,000,000	\$380,000 to \$420,000	\$600 to \$900	YES - This option is the foundation of the Current Plan
Modified Operation of Lake Del Valle		Depends on hydrologic conditions	no change	no change	600	0.9	0	2015 - 2020	\$500,000 to \$1,000,000	\$48,000	\$140 to \$200	Not at this time, due to low yield. May be evaluated in the future pending success of planned water conservation and recycled water programs.
Confirm BBID Contract		Available during all hydrologic conditions	3,000	2.7	3,000	2.7	0	2011 - 2015	\$50,000 to \$100,000	\$850,000	\$285	YES - This option is a "no regret" action, and was included in all portfolios.
New or Additional Water Supplies												
Surface Water	Additional Water from the State Water Project <i>(increase contract above 80,619 af)</i>	Depends on hydrologic conditions	10% to 30% of Contract Amount	10% to 30% of Contract Amount	60% of Contract Amount	60% of Contract Amount	0	2015 - 2020	\$12,600 to \$15,800 per acre-foot	\$130	\$840 to \$1,050	Not at this time until more is known about the potential yields of the Delta Fix.
	Long-term Non-State Water Project Lease or Transfer <i>(not spot market water)</i>	Depends on hydrologic conditions	14,000	12.5	10,900	9.7	0.0	2015 - 2020	\$2,000,000	\$0	\$800 to \$1,300	YES - This option, along with Regional Desalination, were used to analyze the Intertie Portfolio.

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	Los Vaqueros Reservoir Expansion	Depends on hydrologic conditions	0 to 8,300	7.4	0 to 8,300	7.4	0	2015 - 2020	\$32,400,000 to \$212,000,000	\$420,000 to \$2,800,000	\$330 to \$2,200	Not at this time - the option does not appear to provide additional water supply.
Groundwater	Transfers via Purchase of Agricultural or M&I Land	--	--	--	--	--	--	--	--	--	--	Not at this time due to potentially insurmountable institutional and political barriers.
Stormwater Runoff and Rainfall Capture												
	Acquisition of Arroyo Mocho Water Rights	Depends on hydrologic conditions	< 200	< 0.18	900 to 1,800	0.8 to 1.6	0	2020 - 2030	\$1,800,000	\$12,000	\$100 to \$200	YES - Backup Portfolios (In-Valley and Intertie)
	Acquisition of Arroyo Las Positas Water Rights	Depends on hydrologic conditions	< 200	< 0.18	800 to 1,500	0.7 to 1.3	0	2020 - 2030	\$1,600,000	\$12,000	\$100 to \$200	YES - Backup Portfolios (In-Valley and Intertie)
	Acquisition of Tassajara and San Ramon Valley Creeks Water Rights	--	--	--	--	--	--	--	--	--	--	Not at this time as there does not appear to be an economically feasible way to capture water.
	End-User Local Rain Capture for Recharge (Low Impact Development)	--	--	--	--	--	--	--	--	--	--	Not at this time due to potential "end-user" regulatory issues (cannot count on end-user to comply).

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End-User Local Rain Capture for Irrigation (residential, commercial, institutional roof top capture)	Available during all hydrologic conditions (storage is less than yield during driest year on record)	220 to 860	0.2 to 0.8	220 to 860	0.2 to 0.8	0	2015 - 2040	\$94,000,000 to \$395,000,000	\$9,400,000 to \$39,500,000	\$73,600 to \$79,300	Not at this time due to potential "end-user" regulatory issues (cannot count on end-user to comply) and costs.
Recycled Water for Livermore-Amador Valley (Water Demand Reduction for Zone 7 Water Agency)											
Recycled Water - Direct and Indirect Use	Available during all hydrologic conditions	2,600-16,000 - depends on demand (needs additional analysis)	2.3 to 14.3	2,600-16,000 - depends on demand (needs additional analysis)	2.3 to 14.3	0 to 16.3	Builds up over time pending location of demand (needs additional analysis)	Varies according to project	Varies according to project	\$1,500 to \$2,400	YES - Backup Portfolio (In-Valley Portfolio)
End-User Graywater Reuse for Residential Irrigation	Available during all hydrologic conditions	1,200 to 5,400	1.1 to 4.8	1,200 to 5,400	1.1 to 4.8	2.2 to 10	Builds up over time from 2015 to buildout	\$20,000,000 to \$163,000,000	\$3,000,000 to \$24,000,000	\$3,700 to \$6,600	Not at this time due to potential "end-user" regulatory issues (cannot count on end-user to comply) and costs.
Groundwater Injection with Highly Treated Recycled Water (recharge groundwater basin with recycled water treated with reverse osmosis technology)	Available during all hydrologic conditions	Additional Supply in Main Basin: 2,800 af/yr	Additional Supply in Main Basin: 2.5	Additional Supply in Main Basin: 2,800 af/yr	Additional Supply in Main Basin: 2.5	0	2015 - 2020	\$34,000,000 to \$40,000,000	\$1,400,000	\$1,500 to \$1,600	YES - however, direct recycled water was used first due to costs.

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Agricultural Waste Stream Reuse	Available during all hydrologic conditions	< 100	< 0.1	< 100	< 0.1	> 0.2	--	--	--	--	Not at this time due to low yield.
Commercial/Industrial Waste Stream Reuse	--	--	--	--	--	--	--	--	--	--	Not at this time as it will likely be implemented by others in the Valley while meeting water conservation targets and goals.
Acquisition of Yara Yara Well	Available during all hydrologic conditions	280	0.25	280	0.25	0.75	2011 - 2015	\$4,000,000	\$28,000	\$1,140	Not at this time due to low yield and potentially poor water quality.
Desalination/Demineralization											
Bay Area Regional Desalination Project	Available during all hydrologic conditions	1,500-5,600	1.3-5	5,600 to 9,300	5 to 8.3	0	2015 - 2020	\$42,400,000	\$2,600,000 to \$4,400,000	\$1,400 to \$2,000	YES - This option, along with long-term non-SWP Leases or transfers, were used to analyze the Intertie Portfolio.
ACWD Entitlement Exchange via Demineralization	Available during all hydrologic conditions	4,100	3.7	4,100	3.7	0 to 3.7	2020 - 2025	\$80,000,000	\$6,000,000	\$2,900	YES - however, other options appear more cost effective.
Fringe Basin Development <i>(including Mocho Sub basin I)</i>	--	--	--	--	--	--	--	--	--	--	Not at this time due to low yields and potentially poor water quality.

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Operational Improvements												
Loss Reduction	Reduction of Mocho Demineralization Losses (20% to 15%)	Available during all hydrologic conditions	260	0.23	260	0.230	0	2011 - 2015	\$100,000	\$0	\$30	YES - this is a "no regret" action included in all portfolios.
	Reduction of Unaccounted-for Water	Available during all hydrologic conditions	1,300	1.2	1,300	1.2	2.4	2011 - 2015	\$500,000	\$100,000	\$100	YES - this is a "no regret" action included in all portfolios.
	Reduction of Well Startup Waste	Available during all hydrologic conditions	< 100	< 0.1	< 100	< 0.1	0	--	--	--	--	Not at this time due to low yield.
	Reduction of Cawelo and Semitropic Losses	--	--	--	--	--	--	--	--	--	--	Not at this time due to potentially insurmountable institutional and political barriers.

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Recharge Capacity	Enhance Existing In-Lieu Recharge Program	Depends on hydrologic conditions	0	0	Additional Recharge in Main Basin: 500 to 830 af/yr	Additional Recharge in Main Basin: 0.4 to 0.7	0	2011 - 2020	\$200,000	\$40,000 to \$66,400	\$100 to \$110 per acre-foot of additional storage	YES - this is a "no regret" action included in all portfolios.
	Aquifer Storage and Recovery in Main Basin	Depends on hydrologic conditions & system capacity	0	0	Additional recharge in Main Basin: 3,000 af/yr	Additional Supply in Main Basin: 2.7	0	2015 - 2020	\$2,400,000	\$600,000	\$260 per acre-foot of additional storage	Not at this time due to like benefit already planned as part of the Chain of Lakes.
	In Stream Infiltration via Swales	Depends on hydrologic conditions	0	0	Additional Supply in Main Basin: 830 af/yr	Additional Recharge in Main Basin: 0.7	0	2015 - 2020	\$7,800,000	\$1,560,000	\$2600 per acre-foot of additional storage	Not at this time due to like benefit already planned as part of the Chain of Lakes.
Water Conservation												
Potable Demand Reductions (Water Conservation Act of 2009)		Available during all hydrologic conditions	3,000 to 6,000	2.7 to 5.4	3,000 to 6,000	2.7 to 5.4	5.4 to 10.8	2015 - 2020	Depends on the methodology used by each water supply retailer.	Depends on the methodology used by each water supply retailer.	Depends on the methodology used by each water supply retailer.	YES - it was assumed that Zone 7 would continue to work with the water supply retailers to achieved water conservation targets; all portfolios were evaluated assuming 6,000 AF of demand reduction associated with the Water Conservation Act of 2009.

^(a) Availability refers to the hydrologic conditions the water supply is available.

^(b) DRY YEAR YIELD: The supply available during single dry or multiple dry years.

^(c) AVERAGE YIELD: The long-term average supply available over various hydrologic conditions.

^(d) Capacity available to help meet maximum day demands during the summer months. Unless limited by facilities, based on a peaking factor of 2.0 times the average supply.

^(e) Potential timing is the projected years that the supply would become available to Zone 7, after planning, design, CEQA, and construction.

^(f) Capital costs include all of the additional one-time costs to obtain, convey, treat, and deliver the water supply.

^(g) Operation and Maintenance costs include all of the annual expenses necessary to maintain the supply (e.g., power and chemical costs).

^(h) For comparative purposes, all costs were amortized based on 6 percent interest over a 30 year term.